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10/821,676	04/09/2004	Kendall Johnston	KJOHNS.002C1	1404

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EXAMINER

IZAGUIRRE, ISMAEL

ART UNIT PAPER NUMBER

3765

DATE MAILED: 04/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/821,676

Applicant(s)

JOHNSTON, KENDALL

Examiner

Ismael Izaguirre

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 16-22 and 31-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 47-51 is/are allowed.
- 6) ☒ Claim(s) 1-7, 16-22, 31-35, 38-42 and 46 is/are rejected.
- 7) ☒ Claim(s) 36, 37 and 43-45 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/9/04
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

CLAIMS

Summary

Claims 1,16,31,32,35,39,42 and 47 are the independent claims under consideration in this Office Action.

Claims 2-7,17-22,33,34,36-38,40,41,43-46 and 48-51 are the dependent claims under consideration in this Office Action.

Specification

In the specification, page 4, paragraph "0018", line 3 (i.e., page 4, line27), "is between the first and second bays" should be replaced by "is between the first and third bays".

Claim Rejections - 35 U.S.C. § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 31 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In line 2, "the second bay being between the first and second bays" is unclear. Replacing this by "the second bay being between the first and third bays" would clear this up.

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3,7,16-18,22 and 31 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Singleton (3,489,326) in view of Bardsley (5,182,997).

Singleton discloses the invention substantially as claimed. Singleton teaches a tufting machine (column 2, line 27) comprising a frame assembly 16 and several bays (figure 2) of yarn feeding rollers 13 for feeding yarns in a particular amount and speed to inherent needles for forming a tufting pattern. Singleton teaches first second and third feed rollers 13 as being aligned in rows across the bays of the machine and teaches a plurality of bays where a shaft 12 aligns the rollers along the row and where including support portions 15 defining the bays. These supports comprise roller bearings 12c. The supports comprise support recesses at the two collars 12f (figure 3) and another recess for accommodating the bearing 12c. The shafts 12a of the rollers include terminal ends disposed between the supports and have slotted ends 12d for accommodating keys 12e into the slots of adjacent shafts. In this way, a roller between a particular bay can be replaced without removing an adjacent roller. The rollers are used to feed yarns to tufting needles by running the yarns on the outer surface of the

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rollers and applying friction to the yarns by such rollers. However, Singleton does not suggest the inlet guides, outlet guides and further feed roller assemblies including swingable wheels, which selectively press the yarn onto the feed rollers at desired pattern timings.

Bardsley teaches a tufting machine including feed roller pairs 54,56,58 and 60 for feeding yarn to the needles for forming a tufting pattern on a material. Bardsley teaches the feed roller assemblies including inlet guides 22 and outlet guides 50 and further wheels 38,40 for selectively swinging and pressing the yarn against the feed rollers as desired depending on the pattern.

Accordingly, it would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention to construct the feed roller assembly of Singleton as including inlet and outlet guides and selectively movable pressing rollers for contacting the feed rollers. Providing such structure would complete the feeding of yarns in a more precise and efficient manner since the pressing wheels control the feeding of the yarns at particular speeds and times dependent on the pattern.

Claims 4 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Singleton, as modified by Bardsley above, and further in view of Jarvis et al. (4,822,241).

Singleton, as modified by Bardsley above, discloses the invention substantially as claimed. Singleton teaches a tufting machine comprising a frame assembly 16 and several bays of yarn feed rollers 13 for feeding yarns in a particular rate to inherent needles for forming a tufting pattern. Singleton teaches the rollers 13 including bearing

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support portions 15. These supports comprise roller bearings and a key for fitting into the slots of shafts 12a, which support the rollers 13. The rollers are supported on such shafts and include means for accommodating the keys 12e and allow these to be removed from a particular bay. However, Singleton, as modified by Bardsley above, does not suggest the shaft keys being formed of a phenolic material.

Jarvis et al. teach an automatic dishwasher pump device. Jarvis et al. further teach the impeller shaft portion at 84 (figures 5 or 2b, for example) having radial key slots 80f for accommodating a key structure 82. The key arrangement forms a connection between the motor shaft and the impeller 42. Further, the key is formed of a Phenolic material (column 6, line 15).

Accordingly, it would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention to construct the feed roller assembly of Singleton, as modified by Bardsley above, as including a Phenolic key at the bearing assembly of the slots of the roller shafts. Providing such a material for the key would reduce the weight, yet provide high strength (from Jarvis et al., column 6, lines 14-15), which is useful in a spinning/ torquing shaft environment.

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Singleton, as modified by Bardsley above, and further in view of Jarvis et al.

Singleton, as modified by Bardsley, and further modified by Jarvis et al. above, discloses the invention substantially as claimed. Singleton teaches a tufting machine comprising a frame assembly 16 and several bays of yarn feed rollers 13 for feeding yarns in a particular rate to inherent needles for forming a tufting pattern. Singleton

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teaches the rollers 13 including bearing support portions 15. These supports comprise roller bearings and a key for fitting into the slots of shafts 12a, which support the rollers 13. The rollers are supported on such shafts and include means for accommodating the keys 12e and allow these to be removed from a particular bay. However, Singleton, as modified by Bardsley above, does not suggest the shaft keys provided with an interference fit between the slots and keys.

It would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention to construct the feed roller assembly of Singleton, as modified by Bardsley, and further modified by Jarvis et al. above, as including an interference fit between the keys and slots of the roller shafts. Providing such a fit would assure the drive connection between the keys and slots as being positive and thus produce an accurate pattern on the tufted product. The interference fit would assure that creep does not set in and cause the connection to heat up and fail.

Claim 20 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Singleton, as modified by Bardsley above.

Singleton, as modified by Bardsley above, discloses the invention substantially as claimed. Singleton teaches a tufting machine comprising a frame assembly 16 and several bays of yarn feed rollers 13 for feeding yarns in a particular rate to inherent needles for forming a tufting pattern. Singleton teaches the rollers 13 including bearing support portions 15. These supports comprise roller bearings and a key for fitting into the slots of shafts 12a, which support the rollers 13. The rollers are supported on such shafts and include means for accommodating the keys 12e and allow these to be

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removed from a particular bay. However, Singleton, as modified by Bardsley above, does not suggest the shaft keys provided with an interference fit between the slots and keys.

It would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention to construct the feed roller assembly of Singleton, as modified by Bardsley above, as including an interference fit between the keys and slots of the roller shafts. Providing such a fit would assure the drive connection between the keys and slots as being positive and thus produce an accurate pattern on the tufted product. The interference fit would assure that creep does not set in and cause the connection to heat up and fail.

Claims 6 and 21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Singleton, as modified by Bardsley above, and further in view of Hackney et al. (2,954,865).

Singleton, as modified by Bardsley above, discloses the invention substantially as claimed. Singleton teaches a tufting machine comprising a frame assembly 16 and several bays of yarn feed rollers 13 for feeding yarns in a particular rate to inherent needles for forming a tufting pattern. Singleton teaches the rollers 13 including bearing support portions 15. The rollers are used to feed yarns to tufting needles by running the yarns on the outer surface of the rollers and applying friction to the yarns by such rollers. However, Singleton, as modified by Bardsley above, does not suggest the rollers as including vulcanized coatings.

Hackney et al. teach a tufting machine for forming tufted rugs (column 1, lines 15- 16) feed rollers 12, 14 and 16 (figure 1, for example) for driving the yarns being tufted. Further, the rollers include a rubber coating (column 2, line 7) on the outer surface of the rollers.

Accordingly, it would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention to construct the feed roller assembly of Singleton, as modified by Bardsley above, as including rollers with rubber coatings (i.e., vulcanized rubber coatings). Providing such rubber coatings would enhance the grip the rollers can apply on the yarns and thus positively feed the yarns and provide the desired pattern.

Claims 32 and 33 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Singleton in view of Hackney et al.

Singleton discloses the invention substantially as claimed. Singleton teaches a tufting machine comprising a frame assembly 16 and at least three bays of yarn feed rollers 13 for feeding yarns in a particular rate to inherent needles for forming a tufting pattern. Singleton teaches the rollers 13 as including at least one roller assembly running across all three bays and where the rollers are used to feed yarns to tufting needles by running the yarns on the outer surface of the rollers and applying friction to the yarns by such rollers. However, Singleton does not suggest the rollers as including vulcanized coatings and does not suggest yarn wheels movable into and out of engagement with the roller outer coverings.

Hackney et al. teach a tufting machine for forming tufted rugs (column 1, lines 15- 16) feed rollers 12, 14 and 16 (figure 1, for example) for driving the yarns being

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tufted. Further, the rollers include a rubber coating (column 2, line 7) on the outer surface of the rollers.

Accordingly, it would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention to construct the feed roller assembly of Singleton as including rollers with rubber coatings (i.e., vulcanized rubber coatings). Providing such rubber coatings would enhance the grip the rollers can apply on the yarns and thus positively feed the yarns and provide the desired pattern.

Hackney et al. teach a tufting machine including feed rollers 12, 14 and 16 and further teaches wheels 23, 24, 32 and 34 for selectively swinging and pressing the yarn against the feed rollers as desired depending on the pattern.

It would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention to construct the feed roller assembly of Singleton as including movable pressing rollers for contacting the feed rollers. Providing such structure would further enhance the grip on the yarns by the rollers and positively/ selectively feed the yarns for forming the desired pattern.

Claim 34 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Singleton, as modified by Hackney et al. above, and further in view of Jarvis et al.

Singleton, as modified by Hackney et al. above, discloses the invention substantially as claimed. Singleton teaches a tufting machine comprising a frame assembly 16 and several bays of yarn feed rollers 13 for feeding yarns in a particular rate to inherent needles for forming a tufting pattern. Singleton teaches the rollers 13 including bearing support portions 15. These supports comprise roller bearings and a

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key for fitting into the slots of shafts 12a, which support the rollers 13. The rollers are supported on such shafts and include means for accommodating the keys 12e and allow these to be removed from a particular bay. However, Singleton, as modified by Hackney et al. above, does not suggest the shaft keys being formed of a phenolic material.

Jarvis et al. teach an automatic dishwasher pump device. Jarvis et al. further teach the impeller shaft portion at 84 (figures 5 or 2b, for example) having radial key slots 80f for accommodating a key structure 82. The key arrangement forms a connection between the motor shaft and the impeller 42. Further, the key is formed of a Phenolic material (column 6, line 15).

Accordingly, it would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention to construct the feed roller assembly of Singleton, as modified by hackney et al. above, as including a Phenolic key at the bearing assembly of the slots of the roller shafts. Providing such a material for the key would reduce the weight, yet provide high strength (from Jarvis et al., column 6, lines 14-15), which is useful in a spinning/ torquing shaft environment.

Claims 35,38-42 and 46 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Singleton in view of Andrew et al (3,831,874).

Singleton discloses the invention substantially as claimed. Singleton teaches a tufting machine comprising a frame assembly 16 and at least three bays of yarn feed rollers 13 for feeding yarns in a particular rate to inherent needles for forming a tufting pattern. Singleton teaches the rollers 13 as including at least one roller assembly

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running across all three bays and where the rollers are used to feed yarns to tufting needles by running the yarns on the outer surface of the rollers and applying friction to the yarns by such rollers. Each roller is removable between the bays due to a slot and key arrangement at the shaft ends. The object of the invention is to provide a drive shaft of such form as to readily allow the removal or replacement of the drive (feed) rollers carried thereby and wherein "down-time" is minimized (from column 2, lines 4-8). However, Singleton does not suggest the method of replacing covers (contact patch) for the rollers by ground vulcanized polyurethane covers once the rollers have been removed from an intermediate bay in the tufting machine

Andrew et al. teach a yarn handling machine (yarn twisting machine) and teaches the method of removing a roller which has an outer covering and removing the outer covering from the roller and applying a vulcanized covering (polyurethane or rubber) on the feed roller. Andrew et al. teach, as an example, a roller with a removable sleeve for replacement including a vulcanized cover Figure 2, for example). In his description of the background of the invention (see column 1, lines 15-39), he details why a roller would have to have its cover replaced. The roller is subjected to high amounts of friction and the formation of grooves and ridges from the yarn being passed on the periphery of the roller cause the outer "tire" to wear and fail. When this wear occurs, the "tire" is removed and replaced and then machined (ground) to size.

It would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention to construct the feed roller assembly of Singleton as having the rollers, which are removed from the tufting machine for replacement, to include the

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further steps of removing the outer covering from a worn roller and replacing this by a new ground vulcanized polyurethane cover. Providing these method steps would provide the roller with a new contact surface (or contact patch) for engaging the yarn being feed and thus provide the proper friction for producing the desired tufted pattern.

ALLOWABLE SUBJECT MATTER

Claims 36,37 and 43-45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 47-51 are allowable over the art of record.

PERTINENT CITATIONS

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Boyles illustrates a tufting machine including rollers with outer covers of neoprene or rubber. Morrison et al. illustrate fed rollers in a tufting machine including rollers with rubber covers. Snelling et al. illustrate a roller with a polyurethane coating.

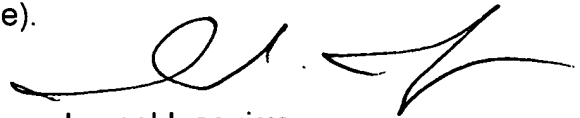
INQUIRIES

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ismael Izaguirre whose telephone number is (571) 272-4987. The examiner can normally be reached on M-F (8:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Calvert can be reached on (571) 272-4983. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Ismael Izaguirre
Primary Examiner
Art Unit 3765